

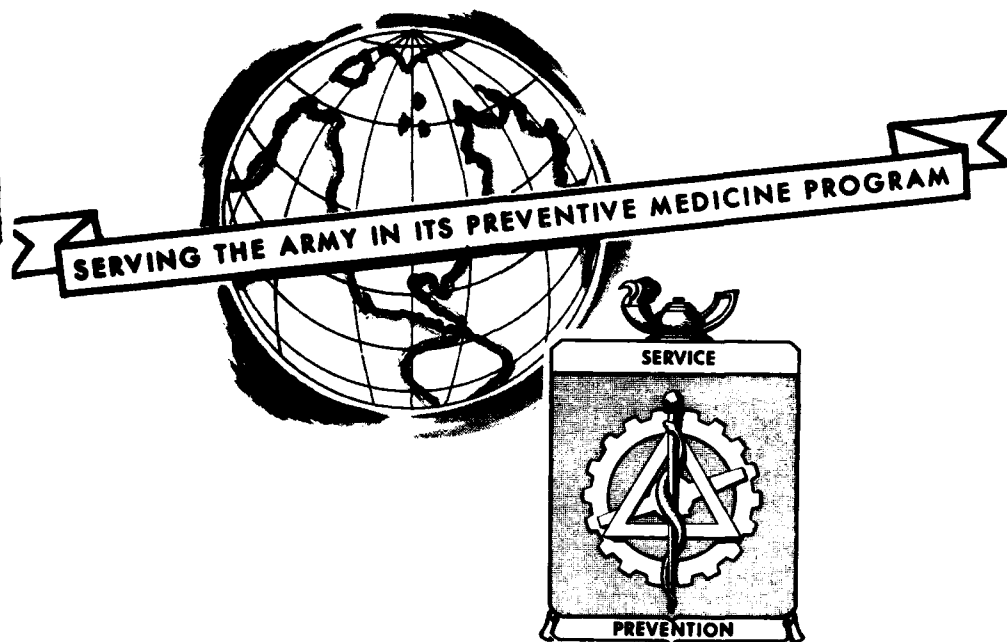
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AD NUMBER
AD870253
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PRIMARY IRRITATION EVALUATION PROGRAM STUDY  
STUDY NUMBERS 33-024-70 THRU 33-031-70  
JANUARY-MARCH 1970



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DEPARTMENT OF THE ARMY  
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EDGEWOOD ARSENAL, MARYLAND 21010

25 MAY 1970

PRIMARY IRRITATION EVALUATION PROGRAM STUDY  
STUDY NUMBERS 33-024-70 THRU 33-031-70  
JANUARY-MARCH 1970

ABSTRACT

Eight candidate repellents were evaluated on New Zealand White rabbits for their potential to cause skin and eye irritation. This was used as a basis for making the following recommendations concerning their use on humans.

a. Candidate repellents, ENT-34293-Ga, ENT-19084-Gc, ENT-70169-Ga, and ENT-70177-Ga, should be used only on human skin found by examination to have no abrasions or may be used in clothing.

b. There are no restrictions for the acute application of ENT-34288-Ga and ENT-70209-aGa to the human skin. Irritation of human eyes is not expected if either of the compounds should accidentally get into the eyes, provided they are washed out as soon as possible.

c. There is no restriction for the acute application of ENT-34289-Ga to the human skin, but the compound should be used with caution around the eyes and mucosa.

d. There is no restriction for the acute application of ENT-70198-Ga to the human skin, but the compound should be used with extreme caution around the eyes and mucosa.

e. Those compounds found to be irritating to the skin or the eyes should be resubmitted in the form and at the concentration of their intended use so that their irritation potential can be reexamined.



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1. REFERENCES.

- a. Memorandum of Understanding between the Department of the Army, Office of The Surgeon General; Armed Forces Pest Control Board and the United States Department of Agriculture effective July 1967.
- b. Letter, US Department of Agriculture, Gainesville, Florida, dated 10 December 1969, to this Agency.
- c. Letter, US Department of Agriculture, Gainesville, Florida, dated 18 December 1969, to this Agency.
- d. Toxicology Division Procedural Guide, USAEHA, 1968 (Revised 1969).

2. PURPOSE. This report classifies the candidate repellents listed according to the categories described in the Appendix as determined by a study of their effects on the skin and eyes of rabbits. The information contained in this report is intended only for guidance in further entomological testing of the compounds.

3. SUMMARY OF FINDINGS. The chemical formula and purity of the S. C. Johnson candidate chemicals were not furnished with the request to perform the primary irritation evaluations. The formulations of the S. C. Johnson candidate chemicals were classified "commercially discrete" by the manufacturer. The categories assigned to the test compounds are based upon their ability to cause primary irritation of the skin and eyes of New Zealand White rabbits. The following compounds are classified according to the categories listed and defined in the Appendix:

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33-031-70, Jan-Mar 70

Study Numbers	ENT Nos.	PIEP Categories		Compound Chemical Names or Other Identifying Symbols
		Skin	Eyes	
33-024-70	34288-Ga	I	A	1-(Butylsulfonyl)piperidine
33-025-70	34289-Ga	I	C	1-(Butylsulfonyl)pyrrolidine
33-026-70	34293-Ga	II		N,N-Dipropylbutanesulfonamide
33-027-70	70209-aGa	I	A	1-(Butylsulfonyl)hexahydro-1H-azepine
33-028-70	19084-Gc	II		N,N-Dibutyl-o-ethoxybenzamide
33-029-70	70169-Ga	II		Commercially Discrete S. C. Johnson 2932-R-148
33-030-70	70177-Ga	II		Commercially Discrete S. C. Johnson 3026-R-61
33-031-70	70198-Ga	I	E	Commercially Discrete S. C. Johnson 3026-R-85

4. RECOMMENDATIONS. Recommendations pertaining to individual compounds in this study can be found in the Appendix by referring to each compound's PIEP category. Those compounds found to be irritating to either the skin or the eyes should be resubmitted in the form and at the concentration of their intended use so that their irritation potential can be reexamined.

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APPENDIX  
DEFINITIONS OF CATEGORIES OF COMPOUNDS  
PRIMARY IRRITATION EVALUATION PROGRAM

Category I - Compounds producing no primary irritation of the intact skin or of the skin surrounding an abrasion.

(Interpretation - There is no restriction for acute application to the human skin.)

Except when specifically requested for individual compounds, the following Eye Injury Categories, A through F, are determined only for those compounds which are in Category I.

- A. Compounds noninjurious to the eye.  
(Interpretation - Irritation of human eyes is not expected if the compound should accidentally get into the eyes, provided it is washed out as soon as possible.)
- B. Compounds producing mild injury to the cornea.  
(Interpretation - Compounds should be used with caution around the eyes.)
- C. Compounds producing mild injury to the cornea and, in addition, some injury to the conjunctiva.  
(Interpretation - Compounds should be used with caution around the eyes and mucosa.)
- D. Compounds producing moderate injury to the cornea.  
(Interpretation - Compounds should be used with extreme caution around the eyes.)
- E. Compounds producing moderate injury to the cornea and, in addition, producing some injury to the conjunctiva.  
(Interpretation - Compounds should be used with extreme caution around the eyes and mucosa.)
- F. Compounds producing severe injury to the cornea and to the conjunctiva.  
(Interpretation - Compounds should be used with extreme caution. It is recommended that use be restricted to areas other than the face.)

APPENDIX (Cont)

Category II - Compounds producing no primary irritation of the intact skin but producing mild primary irritation of the skin surrounding an abrasion.  
(Interpretation - Compounds should be used only on human skin found by examination to have no abrasions or may be used in clothing.)

Category III - Compounds producing mild primary irritation of the intact skin and of the skin surrounding an abrasion.  
(Interpretation - Compounds should be used with extreme caution on the skin or may be used in clothing.)

Category IV - Compounds producing moderate primary irritation of the intact skin and of the skin surrounding an abrasion.  
(Interpretation - Compounds should not be used directly on the skin but may be used as clothing impregnants with extreme caution.)

Category V - Compounds producing moderate primary irritation of the intact skin and of the skin surrounding an abrasion and, in addition, producing necrosis, vesiculation, ulceration and/or eschars.  
(Interpretation - Compounds should not be used in studies involving human skin contact.)

Category VI - Compounds producing severe primary irritation of the intact skin and of the skin surrounding an abrasion and, in addition, producing necrosis, vesiculation, ulceration and/or eschars.  
(Interpretation - Compounds should not be used in studies involving human skin contact.)

Category VII - Compounds impossible to classify because of staining of the skin or because of other masking effects due to physical properties.  
(Interpretation - Compounds are not suitable for use on humans.)

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Security Classification

DOCUMENT CONTROL DATA - R & D		
(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)		
1. ORIGINATING ACTIVITY (Corporate author) USA ENVIRONMENTAL HYGIENE AGENCY EDGEWOOD ARSENAL, MARYLAND 21010		25. REPORT SECURITY CLASSIFICATION UNCLASSIFIED
		26. GROUP NA
2. REPORT TITLE PRIMARY IRRITATION EVALUATION PROGRAM STUDY		
3. DESCRIPTIVE NOTES (Type of report and inclusive dates) Final Report - January-March 1970		
4. AUTHOR(S) (First name, middle initial, last name) WILLIAM J. SPEAR, JR.                      Marshall Steinberg CPT, VC    LTC, MSC		
5. REPORT DATE 25 MAY 1970	75. TOTAL NO. OF PAGES 4	76. NO. OF REFS 4
6. CONTRACT OR GRANT NO. A. PROJECT NO. 33-024-70 thru 33-031-70		85. ORIGINATOR'S REPORT NUMBER(S) 33-024-70 thru 33-031-70
C.		86. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
D.		NA
10. DISTRIBUTION STATEMENT Each transmittal of this document outside the Department of Defense must have prior approval of the USA Environmental Hygiene Agency, Edgewood Arsenal, Md. 21010		
11. SUPPLEMENTARY NOTES NA		12. SPONSORING MILITARY ACTIVITY NA
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14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
ENT-34288-Ga						
ENT-34289-Ga						
ENT-34293-Ga						
ENT-70209-Ga						
ENT-19084-Ga						
ENT-70169-Ga						
ENT-70177-Ga						
ENT-70198-Ga						
Toxicity						
1-(Butylsulfonyl)piperidine						
1-(Butylsulfonyl)pyrrolidine						
N,N-Dipropylbutanesulfonamide						
1-(Butylsulfonyl)hexahydro-1H-azepine						
N,N-Dibutyl-o-ethoxybenzamide						
S. C. Johnson 2932-R-148						
S. C. Johnson 3026-R-61						
S. C. Johnson 3026-R-85						

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